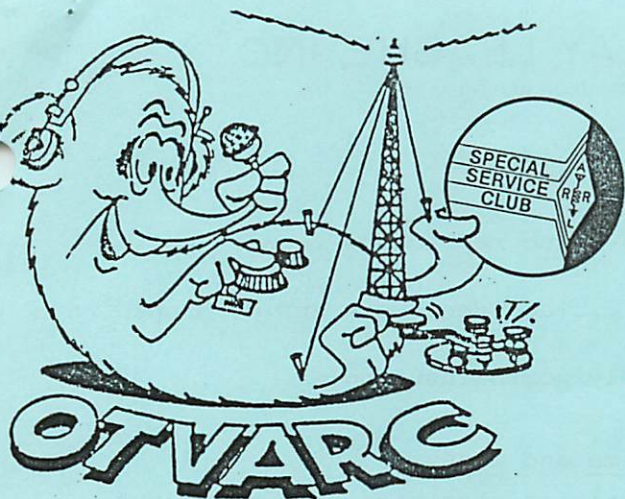




OREGON TUALATIN VALLEY



JUNE, 1985

AMATEUR RADIO CLUB

Po Box 5132 Beaverton, Oregon 97006

EDITOR: AL BERG WB7SIC

Membership: 238

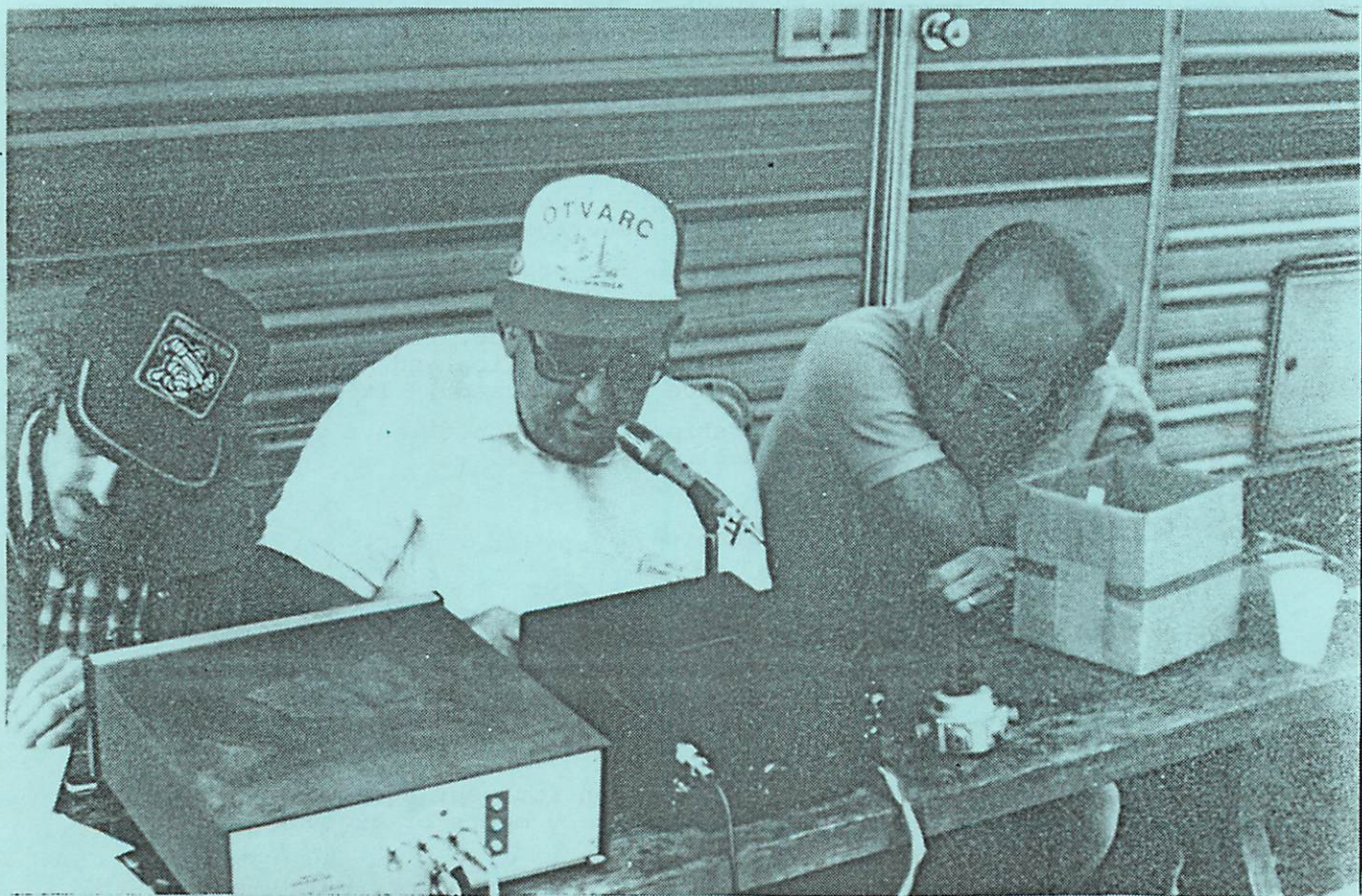
CIRCULATION: 275

President:	Geno Buell	KA7KBH	Trustee:	Linda Cereghino	N7CZY
Vice-Pres:	Hanford Van Ness	KE7BB	Trustee:	Terry Biggs	WB7CHK
Secretary:	Jeff Freedman	K7JF	Trustee:	Al Berg	WB7SIC
Treasurer:	Randy Stimson	KZ7T	Trustee:	Greg Milnes	W7AGQ
			Trustee:	Dave Parker	W7LJN

MEETING: 2nd WEDNESDAY BEAVERTON ELKS AT 7:00 p.m. (Dinner at 6:30 p.m.)

MEETING PROGRAM: COMPLETE PROGRAM DETAILS CAN BE FOUND ON THE BACK PAGE.

PILING UP THE POINTS



FIELD DAY: JUNE 21-22-23. DON'T MISS IT!!!!



THE AMERICAN RADIO RELAY LEAGUE, INC.

HEADQUARTERS SOCIETY OF THE INTERNATIONAL AMATEUR RADIO UNION



Dear ARRL Member:

As a ham operator, you know how expensive it can be to replace or repair your equipment if stolen or damaged.

No matter how careful you are, losses can occur ... accidents can and do happen. And, there's no guaranteed way to avoid theft.

Your equipment was worth buying ... it's certainly worth insuring!

Why?

Because any loss can cost you a great deal of time and money.

I'd like to share just a few of the hundreds of claims that have been paid over the last few months by the ARRL Ham Radio Equipment Insurance Program ...

\$6,950.00 claim due to theft of equipment from a parked car.

\$2,368.00 claim due to fire at a residence.

\$1,407.81 claim for damage to computer equipment due to a power surge during a thunderstorm.

\$6,030.00 claim due to burglary.

And the list goes on and on. As a matter of fact, since March of 1982, the ARRL "All-Risk" Ham Radio Equipment Program has paid well over half a million dollars in losses to insured League members! \$500,000.00!!!

Don't take chances any longer! Because like nearly 20,000 fellow League members, you, too, can make the ARRL Ham Radio Equipment Insurance Program the perfect compliment to your ham radio activities ... not only from loss due to theft, but also loss or damage to your equipment by short circuiting, fire, lightning, collision, flood, tornado and other natural calamity.

This is protection for all your mobile and home station equipment (except antennas, towers and rotators), even computer software and hardware you have as related accessories can be covered.

And the ARRL "All Risk" Ham Radio Equipment Insurance Program doesn't stop there.

Any newly purchased equipment valued up to \$1,000 is protected automatically at no additional cost to you until the next renewal of your policy ... that's cost free protection for your new equipment for up to one full year!

But here's the best part ... the cost! -- just \$1 per \$100 of replacement cost value buys this broad "ALL-RISK" coverage!

This is low-cost protection you can count on ... protection you can only get through your League membership.

To learn more about this outstanding membership service, read the enclosed brochure. To enroll, simply complete the short application and mail it with your first annual premium check to our Insurance Administrator. It's that simple.

Take full advantage of your ARRL membership today! Don't leave your ham gear to chance ... protect it! Mail your application now.

Sincerely,

David Sumner, K1ZZ
Executive Vice President

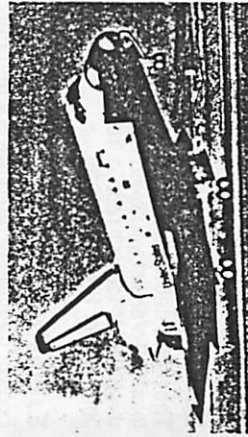
P.S. If you currently have insurance protection for your equipment, you'll find the ARRL Program extends coverage that most likely meets or exceeds your present coverage ... at a much lower price.

Other similar plans can cost as much as \$5 to \$8 per \$100 of replacement cost value -- and protection for your mobile equipment is extra. Don't wait until it's too late

The ARRL "All-Risk" Ham Radio Equipment Insurance Program is sponsored exclusively for the benefit of members of the:



American Radio Relay League

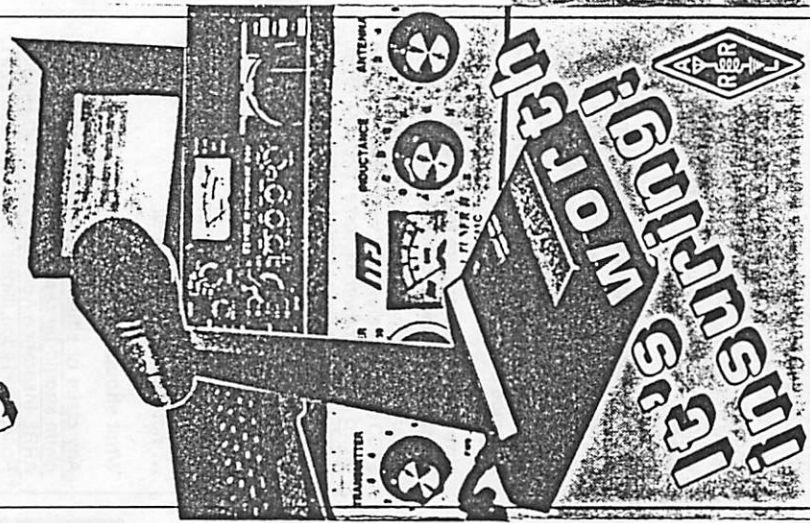


The insurance plan that protected the equipment aboard Columbia Space Lab I.

Administered By:

ARRL GROUP INSURANCE PLANS
1500 Higgins Road
Park Ridge, Illinois 60068
(312) 698-2221

It's what
it's worth...
being insured...



The ARRL "All-Risk" Ham Radio Equipment Insurance Program - for the hazards you face and the accompanying losses that can follow

The ARRL "All-Risk" Ham Radio Equipment Insurance Program

... important protection for the hazards you face and the accompanying losses that can follow from loss or damage to your amateur station and mobile equipment by theft, accident, fire, flood, tornado and other natural calamity.

You're even covered for the replacement cost of computer software such as disks and tapes including reimbursement for the expense of reprogramming for up to \$1,000 per claim if you have computer hardware scheduled on your policy. Computer equipment may include televisions, recorders and other monitoring systems you have as related ham radio accessories.

There's more! Your coverage also includes protection from short circuiting or electrical disturbances due to power failure, electrical surges or any other electrical problems. Your equipment and accessories are covered at home, in the car or even at a Field Day or Hamfest site. That's protection plus!

Compare other insurance coverages with the ARRL Program. You'll find this program less expensive with broader coverage than similar plans available ... in fact, the ARRL "All-Risk" Ham Radio Equipment Insurance Program is the most comprehensive policy you can buy.

What's covered?

Your mobile and home station equipment are covered from all risks of loss or damage - including fire, lightning, theft, collision and overturn or other accidents and natural hazards. (Loss or damage to antennas, towers or rotators is not covered.) Coverage is also provided for computer software for up to \$1,000 AND hardware you have scheduled including related accessories.

Who is eligible?

The ARRL "All-Risk" Ham Radio Equipment Insurance Program is available to all members of the American Radio Relay League who reside in the United States, its territories and possessions. Coverage is also available to ARRL affiliated clubs to protect the club's equipment - including club station and repeater equipment. And ... coverage is guaranteed to all members regardless of past claims experience.

New Property Coverage

For added property UNDER \$1,000 ... if you purchase additional or replacement equipment or take custody of equipment of a type already insured by this policy, it will automatically be protected without any additional premium as long as the added value does not exceed \$1,000. Send no money ... at your next policy renewal date, your total insurance coverage would be reviewed and your policy and premium charge adjusted for the additional coverage. It is not necessary to notify the Administrator or send additional premium.

For added property OVER \$1,000 ... notify the ARRL Insurance Administrator immediately ... only if your new property is valued OVER \$1,000.



Low Cost Coverage

Because of the collective buying power of over 120,000 ARRL members acting as a group and the economies of centralized administration, the cost of this program is much lower than coverage from other sources. Your annual premium is just \$1.00 per \$100 of replacement cost value (minimum premium is \$10). Please add a \$5 administrative fee to your total premium.

For example, if the replacement value of your equipment is worth \$3,200, your annual premium is only \$32 (plus the \$5 fee).

Low Deductible

The plan's deductible is now just \$50 for all losses. To assist you even further, the deductible for loss or repairs resulting from lightning or fire is just \$25.

Exclusions

Loss or damage to radio towers, antennas or rotators is not covered. This program does not insure against the usual and customary exclusions such as loss or damage by mechanical or structural breakdown or failure, dishonest acts, wear and tear or damage occasioned by repairing or tuning.

To Enroll

1. Complete, date and sign the short application at the right. Be sure to list all radio equipment in your possession and its replacement value.



2. Mail your completed application and premium check to the ARRL Insurance Administrator.

Your protection begins ...
on the first of the month following receipt
of your application and premium check.

ANSWERS TO YOUR IMPORTANT QUESTIONS

Can I insure my mobile equipment under this program?

Yes! Your mobile equipment is fully protected under this policy. The ARRL Ham Radio Equipment Insurance Program provides coverage where the typical automobile insurance policy won't.

Can I insure just part of my equipment?

No. You must insure each piece of equipment including all mobile and home station equipment, and any related ham gear accessories (excluding antennas, towers and rotators) that is owned or leased by you.

How does the premium from the ARRL program compare with other similar coverage?

Other coverage available runs \$5 to \$8 per \$100 of replacement cost value. But, due to the group buying power of some 120,000 ARRL members, you pay the low annual group rate of just \$1 per \$100 of replacement cost value!

If I have a loss, will this program pay full replacement costs?

Yes! You will receive the replacement cost or equivalent value of the equipment that is covered ... not a depreciated value!

What should I do if I have a claim?

Any claim or situation which may result in a claim should be reported immediately to the ARRL Insurance Administrator, 1500 Higgins Road, Park Ridge, Illinois 60068, 312-698-2221.

If your claim is due to theft, send a police report to the Insurance Administrator at once. For repair claims, an estimate of damage must be submitted. Claims resulting from theft or damage to newly acquired property must include a proof of purchase.

ACT TODAY!

Ham Radio Equipment Insurance Program

(Please Type or Print)

1. Name of Applicant: _____ Telephone _____

2. Mailing Address: _____

City _____ State _____ Zip _____

3. Other Locations Where Equipment Is Kept _____

4. Date of Birth: _____

5. QST Control No. (from QST Label) _____

SCHEDULE OF EQUIPMENT

6. Use this listing to describe all radio equipment in your possession.

Description (Including Manufacturer's Name, Model and Serial Numbers or Other Identification)

Replacement Cost
(Value at today's prices)

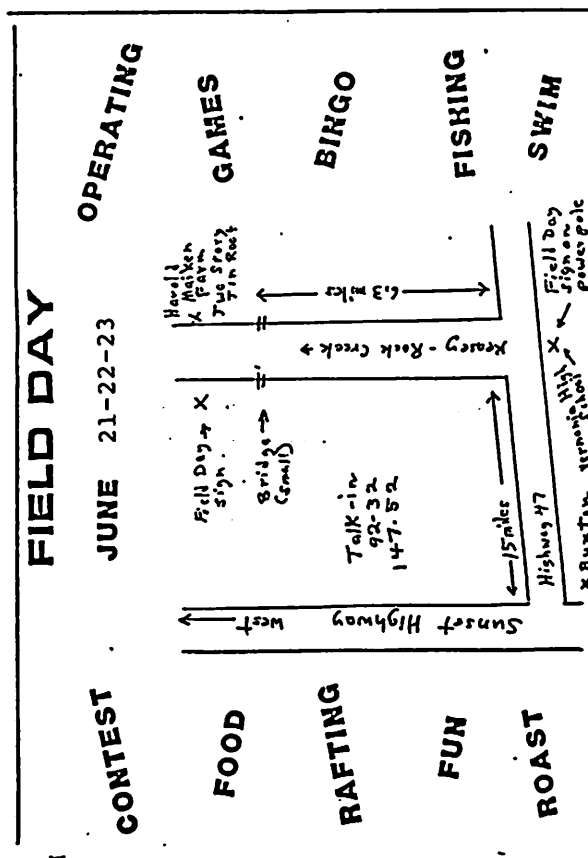
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(If additional space is necessary, please attach a separate sheet)

7. To figure your premium complete the following:

• Total amount of Replacement Insurance	\$ _____
• Total amount of Miscellaneous Items (valued under \$50.00 each)	\$ _____
• Total amount of Insurance	\$ _____
• Annual Premium (based on the rate of \$1 per \$100 of insurance. Minimum premium \$10.00)	\$ _____
• Add Annual Administration Charge	\$ <u>5.00</u>
• Total Amount Enclosed	\$ _____

Date _____ Signature X _____





COMING SOON — NEW OPERATING MANUAL

The completely updated and revised second edition of the popular ARRL Operating Manual has just gone to press, and books will be hitting the streets in early June. Covering everything from DXing to digital, from shortwave listening to satellites, the Operating Manual is your source for contemporary, how-to-do-it operating techniques. The first edition was totally sold out, so don't delay in getting your new copy. Among other things, this new edition provides nuts-and-bolts advice on contesting, DXing, net controlling, talking to OSCAR, gearing up for state-of-the-art RTTY, autopatch and phonepatch guidelines, and much more.

This publication also includes never before published information such as 160-meter frequency allocations around the world, international WARC band (10/18/24 MHz) frequency allocations, international voltage/current requirements by country, and application materials for the Worked All States and Worked All Continents awards. This is just a small sample of what awaits readers of the new Operating Manual. Individual copies are \$5.00 (\$5.50 outside the U.S.), plus \$1.00 postage and handling. See June QST, page 116, for particulars.

"ARRL LETTER"

PUBLIC SERVICE NEWS

I will do a little catching up on Public Service. In April we had the KOA Keg Roll with Janet WB7FJC, Pat KA7UFG, Roger KA7RNN, Lyman W7AZD, Rick KA5OLH, Ron KA7SIK, Jeff KA7AKU, Fred WA7JPE, Dave NA7V, Mike N7GMS, Bud KC7PS, Randy KZ7T, Lorna KA7RFD and Roy N7DUJ participating. Thanks to Bud KC7PS and Roy N7DUJ for putting this together.

Next in April was the Northwest Natural Gas Run with KC7PS, KA7RFD and yours truly working that.

The month of May brought the Diabetics Bike-A-Thon with Jack KA7HJQ, Willie N7DZR, Ernie W7AXJ, Randy KA7TDX, Susan N7EPE, Alan KO7B, Bud KC7PS, Bill K2PO, Sherrill KA7KNG, Jennie KA7SSX, Craig KA7BWO, Dale W7FBP, Doug W7XI, Tom KD7HG, George WA7RDE, Lew KC7MZ, Rick WB6QHS, Steve KC7MY, Roger W7ADV, Judy WA7HXA, John N7DCQ, Debbie N7FVH, Randy N7GFK, Ron N7CE, Lynn WB7UNU, Steve NA7T, Tom WA3RMX, Al W2TMP, Mike W7UDM, Roy W7EL and Tom N7DWV.

I sure hope I didn't leave anyone out but you can see that it takes a lot of people to help in this event. We were unable to help in a couple of areas this year, but will try again next year. I would like to thank Roy N7DUJ for a valiant effort in putting this together.

The month of June has about three events - the Gallivant held on June 9th, 12N-4PM in Lake Oswego which is a running, biking and canoeing event which is done with a 6-person team. I need 2 more people with 2 meter mobil rigs only to help.

We have the Trask motor cycle trials which is held June 22 and 23 and we need more people for this. Next the Cascade Run Off is June 30th. This is handled by CARES and they have all the people they need.

If anyone would like to help on the Gallivant or Trask, please call me Randy, 297-1175, for Trask or Gallivant or Wes, 649-3295, for Trask.

Randy KZ7T

CAMPING ANYONE?????

A couple of months ago we made mention here that Dave Funk, N7DWL, was putting together a camping group. As response has been a little light, it was thought that a second mention might be of use in giving the idea a little boost. Summer is here and what can be more fun than to get out the old RV or tent and join with some friends for a week-end of looking at some scenery other than that same old four walls and crabgrass. Call 620-5215.



STOLEN RADIO REPORT

Icom 2AT. Serial #44650. Ron Gould, KD7RJ

Yaesu FT290R all mode 2m rig. Serial #1H031820 + a Mirage B108 amp with remote control head. Winn Tatro at 246-9865.

Kenwood TS130 and AT130 tuner. Inscribed with ND 0530200273. Call Portland Radio at 228-8647.

Yaesu 227R 2m rig and Motorola speaker. Name on inside and outside of case. Call Andy, WB7RKU, at 760-3873.

Kenwood TR7400 SN# 640351-2. If you have info please call Brice Woodall at 239-4072. No further info is available on the gear.

ICOM 4AT with BP2 battery. Was lost on Mt. Hood ski lift. If found call Don Webber. 981-7310 eves or 255-8634 days.

Kenwood TR2500. SN 4090053. Call Gary Ward at 295-6422 days or 761-9540 eves.

*ICOM 37A. SN 31101266. No DC cable. Also, Kenwood 7400A. No Serial number available. It has holes in the top for stack mounting. No mobile bracket & the speaker jack is shorted. Vehicle theft. Roger Johnson at 771-4933

*Kenwood TR2500. SN311322. Had a PB 25H battery pack and an SMC speaker mic. Also a Larsen HQ antenna. Burglarized 4/12. Call Rich Wiland at 252-1028.

*Kenwood TR2500. SN 4090053. Call Gary Ward at 295-6422 days or 761-9540 evenings.

*Kenwood TR2400. SN 1070159. Has call letters and ODL # under belt clip. Call Larry Welding, KJ7U, at 666-2334.

*Kenwood TM201A. SN 4040994. The owner is Richard Ellis, 2318 NE Minnihaha Street, Vancouver, WA. 98665. No phone! Call Port. Radio.

*Indicates stolen recently

June 22 is Day One for 24 MHz

-- No Field Day Credit on the New Band --

The 24 MHz or 12 Meter band will be released to U.S. amateurs at 0001 UTC on June 22, 1985. The 10 MHz or 30 meter band becomes permanent at the same time.

The ARRL Board policy of no contest credit or awards on the WARC bands will apply to Field Day, unless a decision is reached to the contrary at the Executive Committee meeting on May 18. Watch W1AW bulletins and the ARRL Letter for late-breaking news.

Full power (1500 Watts P.E.P. output) will be permitted on the 24 MHz band, 24.890 to 24.990 MHz. The subband 24.890 to 24.930 MHz is limited to CW and RTTY only. In the subband from 24.930 to 24.990 MHz, CW, phone, FAX, and SSTV will be permitted. On the 10 MHz band, (10.1 to 10.15 MHz), power continues to be limited to 200 Watts P.E.P. output, and CW and RTTY are the only modes allowed. For details on the mode subband allocations, see the Happenings column in December 1984 QST.

On April 26, 1985, the FCC released the First Report and Order in PR Docket 84-960. In addition to the 24 and 10 MHz

allocations, the Order grants the ARRL request for a modification to Section 97.112 of the Amateur Rules. That Section presently provides an exemption so that operators may be paid to operate an amateur station transmitting bulletins and code practice on all medium and high frequency bands, and if the station is on the air at least 40 hours per week. ARRL requested that this be amended to read "at least six" HF and MF bands. ARRL claimed that the addition of the new WARC HF bands created a significant burden with respect to the League's obligation to transmit code practice and bulletins via W1AW on "all" HF bands. FCC agreed that this amendment was warranted.

The 420 to 430 and 902 to 928 MHz allocation matters proposed in Docket 84-960 will be dealt with in a further Report and Order at a later date.

Please remember that amateurs operating in these new bands must avoid interference to the Fixed Service outside the U.S. The effective date of the Order is June 22, 1985.

"ARRL LETTER"

213½ LASHES WITH A DRY NOODLE

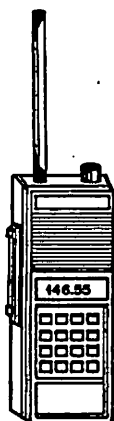
Got a couple of errors to correct. If all of the goofs in last months rag were explained away, it would take two pages! Whew! The two outstanding boo-boos were: David and Karol Nelsons new baby boy weighed quite a bit more than the 8½ oz. stated. Try adding 8#!!!! Sorry folks. The other lulu was telling you that Marvel Noyes, spelled as Noys, upgraded with a call of KA7UMB. Marvel has upgraded but her call is KA7TZT...KA7UMB is Kathryn Andrews, who also upgraded. Sorry Kathy. Now I'll catch heck for calling her Kathy.... Who's got the wet noodles??? Acuraccy is emportunt. Yuou won't find eny in this newleter. I tried harderr!

A SMALL TEE-HEE. Jack, KA7HOJ, was talking to a fellow about OTVARC, the day of our last meeting. This was on 2m, by the way. Anyway, Jack was doing his thing about 'come on to the meeting' and mentioned about an eye-ball get together. When the fellow asked Jack how he would recognize him, Jacks reply was; "I will be wearing a red jacket".. It's true!

VICE DIRECTORS VISIT. It was great to see Rush Drake, W7RM, our Division Vice Director, at the May meeting. He did well with his unexpected time at the microphone. Comments about our club were very kind and well taken by the members. He called us, among other things, UNIQUE and that, my friends, is a real compliment. If being UNIQUE is the clue to having a successful club, let's find more ways to be just a little different. Hope we see more of Mr. Drake. It appears he will be a real boon to the ARRL.

CONGRATS TO VAN. Our VP is performing as no past VP has. He takes his job seriously and it shows! The job he is working on is obtaining meeting programs. The past few shows have been very good! Van is now working 2 to 3 months in advance and what we will see at meetings will get even better. Hats off to KE7BB. He is a DOER!!!!

NICADS---A BRIEF OVERVIEW



Nicads in good shape should read about 1.42 volts when fully charged.

Internal impedance is very low.

Impedance rises as the battery discharges.

To maintain charge, batteries should be stored at a freezing temperature to about -40 degrees f.

Nicads may be charged at C/30 forever.

Fast charge is considered to be about C/3.

Nicads fully charged will deteriorate to about a 10% charge in 20 weeks.

Batteries frozen will maintain 90% of their charge after six months.

Nicads should not be allowed to become completely discharged unless done at a slow rate. Such as, "squelch open and volume on very low".

Nicads stored for long periods of time should be stored discharged.

Nicads will develop a memory if discharged to a similar level many times.

Memory may be avoided by letting the battery discharge to various levels.

When the low battery indicator goes on, the battery should be recharged without further drain.

Batteries that have a heavy current drain during the transition of a discharged state will be damaged and have a shorter life.

By observing the rules of nicad charging and discharging, a battery will have a life of about 3000 full cycles.

A batteries worst enemy is extreme heat. Never charge in a hot location.

A battery full fast charged temperature will be about 125 to 140 degrees.

Never charge nicads in parallel nor draw current from them in parallel.

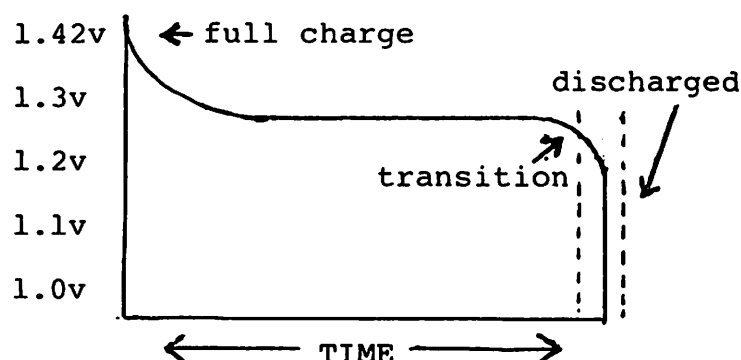
Nicads may be charged at C/10 for a week with no harm.

Never short nicads or attempt to charge off a 12v battery. It may explode.

A shorted cell may be opened by discharging a very large capacitor into the nicad. The capacitor should be enervated to about 13 volts.

Nicads should be charged with a 'constant current voltage limited' chgr..

CURRENT DUTY GRAPH



● American "Woodpecker" coming?

The United States is due to change their DEW-line surveillance radars to state-of-the-art OTH (over the horizon) systems next year. OTH systems have a 5,800 mile range and operate in the HF bands between 5 and 28 MHz. Radar signals reflect back from the ionosphere thousands of miles away giving OTH radar ten times the range of present day systems. Propagation is assessed by computers which shift the radar's frequency to the most favorable spot within its six hf bands. The USSR has been using OTH radar for some time as any DX operator can attest to.

GOT SOMETHING To SELL?

Let us
show you
and



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FREE!

CLASSIFIED ADS ARE FREE TO OTVARC MEMBERS

FOR SALE: YEASU FTDF transceiver - good - \$295

Power supply for Galaxy 5 Mark 3
in spkr. cabinet \$35

Ameco TX86 without power supply \$15

Call Bernie KQ7L at 648-1857

TO BUY - SELL - TRADE call Jim KA7TAC
246-2539 or 246-5457

VISIT YOUR LOCAL RADIO STORE

See you at
Field Day



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(206) 254-4441



HD-1418 multi-mode SSB/CW/TTY Active Audio Filter makes the tough ones easy to copy

Twelve total poles of filtering can be combined to work as SSB & Notch, CW, CW2, SSB & Peak, RTTY and fixed configurations with razor-sharp skirts. Solve such problems as partially overlapped sideband signals, overmodulation splatter, close-packed CW stations, full RTTY reception through heavy interference, heterodyne whistle and noise. Versatile power requirements make this Filter usable almost anywhere. Just supply 7-13.5 volts AC or 9-18 volts DC.

Kit HD-1418, Shpg. wt. 3 lbs. WAS \$129.95 NOW ONLY 99.95
PS-5012 Power Cube, For 120 VAC operation, Shpg. wt. 1 lb. 15.95

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Principal

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MFJ 901B Mini-Tuner

Great for Mobile! **200 Watt**

Reg.: \$63⁹⁵

SALE: \$52⁹⁵!

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**TEST EQUIPMENT AND
INSTRUMENT CASE**

For instrument cases, frequency counters, digital volt meters and other test equipment. Features panels that are .093" x 2.310" x 7.7". Constructed of high quality ABS plastic. Front and back panels are easily punched or cut for application. Includes all hardware for mounting of boards, plus a variety of mounting posts for different P.C. boards. Molded on feet.

Cat. No. 16-140 7.5" x 5.7" x 2.220" (.235" busses), I.D.

SALE: \$6⁹⁵

Reg.: \$10⁹⁵

Cannon 12 VDC MOTORS

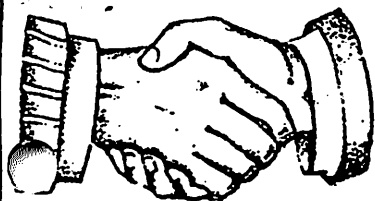
High Torque • 7000 RPM

12 Volts • Great for Hobby Uses!

Wholesale: \$16⁴⁰

SALE: \$5⁰⁰ Ea. Limited Supply

**SHOP WHERE EVERY DOLLAR YOU SPEND
HELPS SUPPORT YOUR CLUB!**



A NEW MEMBER

We welcome Mitch Lewis, KAØITE, to our club. Mitch has the dubious distinction of being our only new member this month. Somewhat of a record for us, to be sure. Mitch and wife Judy live in SE Portland. His occupation is upholstery supply. He lists non-interest in committee work but that is not all bad.

Many of us wish we hadn't!! Right? Thanks for joining us Mitch and hope you make many new friends....

TIME TO GO TO WORK: OTVARC offers much to those who wish to take advantage of it. Like most clubs, we have gone up and down in membership and in participation. We currently have a lot going for us. The meeting programs have been quite good, the attendance has been great and most of the outside activities have been well supported. I question why we have not increased our membership at it's normal rate? Last December we numbered a strong 280. We lost membership at years end, as we always do, but we are not making our normal comeback. Don't get me wrong. Numbers do not make quality and, in fact, can sometimes be a detriment to efficient operation. It is time to start promoting the club. It is not that we need the money so much as the fact that the club has so much to offer the newcomer to ham radio. The quality is there, the opportunity to make new friends, learn more about the hobby and to enjoy it are at anyones fingertips. Why not grab a new ham or persuade an older one to come and enjoy the people in OTVARC. Many have been surprised that we do not have the usual business type of atmosphere. An important consideration when dealing with someone who became soured on clubs at one time or other. No politics! Just a fine group of fellow hams to enjoy and grow with. Give the club a pitch and invite a potential member and friend. We all will benefit.....WB7SIC

HOW ABOUT SOME SUGGESTIONS FOR INTERESTING MEETING PROGRAMS? GOT ANY???

GREAT DISCOVERIES IN ELECTRONICS

Electronics had its beginning in 1745 when Professor Pieter van Musschenbroek discovered the capacitor while trying to "electrify" water in his Leyden jar, which stored a charge, proving to be more useful and convenient to experimentors than a direct charge from a friction machine. 18th century scientists reasoned that the electricity was condensed in the jar, from which comes our word condenser. Today, capacitor is preferred by most people.

80 years elapsed before the volt, the ampere, the ohm, and the farad were described. Yet without identifying the underlying fundamentals of electricity, these giants of the early age of electronics were able to define its principles.

Alessandro Volta sometimes judged a battery by the flash he saw as he touched its wires to his eyelids. His battery was called a "Voltaic Pile" and consisted of two stacks of paired zinc and silver discs packed between layers of brine soaked pasteboard. When columns were connected at the top, current flowed between them, arising from chemical reaction of the paired metals.

Andre Marie Ampere—"The Newton of Electricity"—was first to describe current as the flow of electricity along a wire. He showed that when current flowed through a suspended rectangular wire loop, the loop became magnetized, and acted like a compass needle, rotating to point north. With Hans Oersted, Ampere formulated the laws of electromagnetism in the 1820's.

In 1827, George Simon Ohm's rule of resistance was published. He showed that current depended on the resistance of the wire circuit it flowed through: current varies in direct ratio to the force of the battery and inversely to the wire's resistance. Ohm's source of electricity was not actually a battery, but a set of Leyden jars connected by brass rods.

In 1831, Michael Faraday and Joseph Henry independently discovered that voltage is induced in a conductor as a result of a magnetic field varying in respect to the conductor. Since the varying field could be

developed by varying the current flowing in a second conductor magnetically linked to the first, this led to the development of the transformer. In addition to his discoveries in electromagnetism, Michael Faraday determined the characteristics of capacitors. In his honor, the unit of capacitance measurement was named the Farad.

In 1876, the brilliant James Clerk Maxwell formulated sets of equations which unified into one cohesive theory the findings of his predecessors, laying the foundation for the practical use of electric power—and ultimately, for the emergence of the electronics industry.

Nikola Tesla (1857-1943), inventor and developer of the AC principle of electric power generation. If DC had become the standard for commercial power, the design of nearly all electrical equipment would have been enormously more complicated and costly.

Edison discovered that by introducing a second element in his incandescent bulb, an electric current would flow through a vacuum and be rectified. Except for Galena crystals and electromechanical commutators, this was the first rectifier.

The amplifier made progress in electronics possible. American scientist Leo De Forest patented a triode amplifying tube that was called the audion. He invented the triode by inserting a third element in the tube. After studying the effects of this new device, he and others developed circuits comprised of resistors, inductors and capacitors in which to use it.

The transistor was invented by John Bardeen, Walter Brattain, and William Schockley. Compared to vacuum tubes, transistors are more efficient, lighter, more reliable, and run cooler. There is no delay in warming up, and they produce very little heat.

Other giant steps in the evolution toward miniaturization were printed circuits, in which solid wire connections and tubes were replaced by printed connections on a flat circuit board, and integrated circuits which were born in 1958. They allowed the shrinking of circuitry, reduced component count, and increased reliability.

VERTICAL ANTENNAS

(part three)

MOBILE HOME AND RV INSTALLATION

The principles of vertical antenna installations for use on mobile homes or RV's are the same as for other installations, and they all boil down to two main considerations. The first is that of erecting the vertical in the clearest possible spot, away from obstacles (including the MH or RV) that can interfere with radiation from the antenna. The second is that of installing the best possible ground system beneath the antenna in order to minimize losses from r.f. currents flowing in the earth below the antenna. Fortunately, the metal bodies of both MHs and RVs can be used as highly conducting ground planes for vertical antennas in exactly the same way that automobile bodies, etc., provide the ground system for shorter vertical antennas for mobile operation. The metal body of an automobile, MH or RV may be viewed as one plate of a capacitor. Since the surface area of even a small automobile is quite large and in close proximity to the earth, its body is tightly coupled to the earth below and may be considered simply as an extension of the earth itself—a kind of hill as far as radio frequencies are concerned, but one having higher conductivity than the earth itself. RVs and especially MHs, having much greater surface area, will therefore provide a more extensive and effective ground system than a large number of radial wires occupying the same space as the MH or RV.

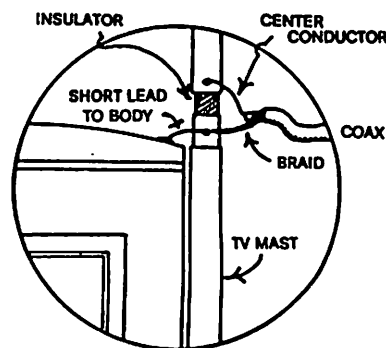
As in mobile installations, a vertical antenna may be mounted almost anywhere on the body of the vehicle or MH and made to operate with reasonably low VSWR, but it is generally considered that the best possible location for a mobile antenna is in the middle of the roof of the vehicle, i.e., at the center of the vehicle's ground plane and at a point where the antenna will not be in the "shadow" of any part of the vehicle. It is not usually convenient, or even practical to install a relatively tall vertical on the roof of an RV or MH for any number of reasons, so the next best procedure would be to install a vertical antenna with its base at the same level as the roof, preferably near the middle of one of the longer sides. The exact way in which this may be done is a matter of convenience, but a short mast extending from ground level to the roof of the MH and RV and placed alongside the building or RV would provide a stable and sturdy support with a minimum of mounting brackets and other modifications to the RV or MH. For portable operation such a mast could simply be lashed alongside the RV with the base in a shallow hole in the ground for additional support, and there would be no harm in extending the mast a few inches above the roof level to permit attachment of ropes which could be used to hold the mast firmly against the side of the vehicle and to prevent sideway.

This system has been used successfully with various types of RVs, travel trailers, and even passenger automobiles during portable operation. For "L" shaped mobile homes a vertical antenna should be placed in the corner of the "L" so that the metal roof will provide groundplane coverage over 270 degrees.

In all cases the base of the vertical antenna should not be more than a few inches away from the MH or RV so that the shortest possible lead may be run from the ground connection of the antenna to the metal body, as the length of this ground lead will effectively lengthen the

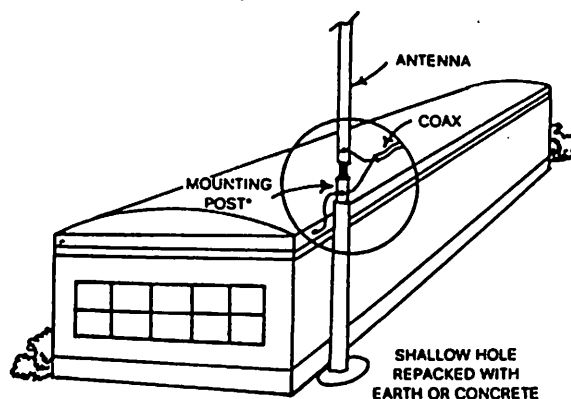
antenna itself on all bands, and detuning can occur in some cases. A good electrical connection between the body of the RV or MH and the antenna is important; and in the case of mobile homes it would be a good idea to make sure that good electrical contact exists between the different parts of the metal body. Discontinuities can often lead to the production of harmonic radiation and TVI. The essential circuit connections are shown in the diagram below.

For permanent installations the bottom of the mast may be set deeper in the ground, and concrete may be used for greater strength and stability. The upper portion of the mast should be securely attached to the side of the building. Steel TV mast sections are readily available in lengths of ten feet and the mounting posts of Butternut HF verticals will slide into those which have an outside diameter of 1¼ inches and a wall thickness of .058 inches. Other vertical antennas may use different mounting techniques and requirements, so be sure to select a mast that will be suited to the particular situation. The main point to keep in mind is that the mast should not extend more than a few inches above the level of the roof so that the ground lead may be kept short.



LIGHTNING PROTECTION

Modern solid state amateur equipment is particularly vulnerable to damage from lightning or static induced transients that may appear on transmission lines, and conventional air-gap lightning protectors may provide no real protection at all for solid state gear. A line of very effective lightning and static protectors has been developed by ALPHA DELTA COMMUNICATIONS, P.O. Box 571, Centerville, Ohio 45459, for use with solid state equipment, and since these devices feature much faster transient discharge times than earlier designs, they should be investigated for possible use with all vertical and other antenna systems.

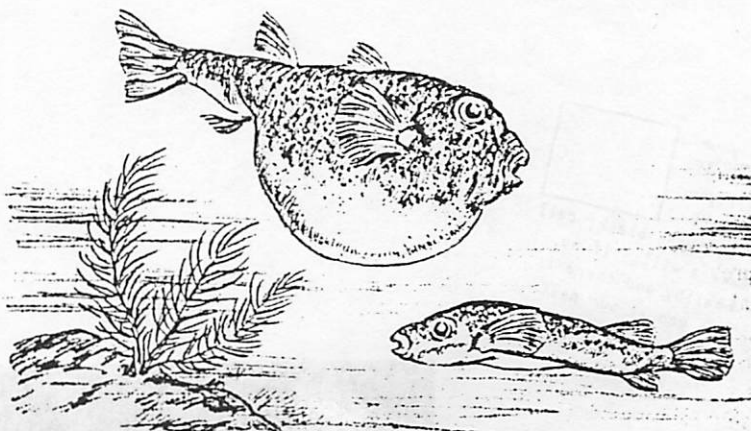


MOBILE HOME AND RV INSTALLATION

*Butternut Models

**BUTTERNUT
ELECTRONICS**

MEETING PROGRAM



Thanks to Marty McKillip, KD7LA, who has taken up skin diving in a pretty serious way, we have a program that will appeal to everyone. This will be a GREAT family dog and pony show. Gordon Smith and Dave Harrison, a couple of diving buddies of Martys, will be presenting us with a super slide show which consists of 40 minutes of underwater photographs taken mostly in the area of Cozumel, (spelling?) which is off the coast of Yucatan. The water is extremely clear and abundant with wildlife. Fish ARE wildlife. Aren't they? Word is, we will also see some pics taken up in Puget Sound. The clarity contrast should prove to be interesting. Marty tells us that his two friends have been diving for quite some time and will not leave us in the dark as to what we are seeing. They know all of the names of the fish as well as the different types of coral formations. What we will see is a visual and verbal show that will surpass what you subscribers of National Geographic enjoy so much. Outstanding slides and subject matter makes this a MUST SEE for all members. This would be a great time to talk one of your ham buddies, who might not be a member, into coming to our meeting. Above all, bring the wife, friend, kids, (if you have one or two kicking around) and have a very enjoyable evening. As is usual, business items will be minimal and we will have a few fun announcements. Like who won what at Seaside? DON'T MISS IT....

WHO TO CALL FOR WHAT

*PUBLIC SERVICE	Randy Stimson	KZ7T	297-1175
	Bud Butterfield	KC7PS	649-1523
*CLUB CONTESTS	Jeff Freedman	K7JF	297-7965
*PROJECT NITE	Terry Biggs	WB7CHK	648-3687
*TECHNICAL	Dee Lynch	KA7NPN	646-4580
*CLUB RAFFLE	Jim Ziegler	KA7TAC	246-2539
*MEETING PROGRAMS	Hanford Van Ness	KE7BB	246-7975
*CLUB SOCIALS	Paul Lucas	WB6SHR	641-8713
*EMERGENCY SERVICE	Willis Raines	N7DZR	292-1656
*TRAINING (classes)	Randy Cobb	KA7HJT	649-5066
*WELCOMING	Doug Bull	N7CDI	649-4540
*PUBLIC RELATIONS	Randy Stimson	KZ7T	297-1175
CLUB JACKETS	Dave Parker	W7LJN	639-7020
CLUB BADGES	Jeff Freedman	K7JF	297-7965
ROSTER CHANGES	" "	" "	" "
ARRG INFORMATION	Warren Winner	W7JDT	644-0752
CLUB SCRAPBOOK	Doc Miller	KA7BSD	" "
ARRL MEMBERSHIP	Randy Stimson	KZ7T	297-1175
ARRL LEGAL COUNSEL	Stan Weinstein	KX7Y	635-6883
CONVENTION (Oregon)	Al Berg	WB7SIC	640-5456
EWSLETTER	" "	" "	" "
ARRL LIAISON	" "	" "	" "

* (indicates committee)

CLUB ARRL APPOINTEES

ARES District Emergency Co-ordinator	KZ7T	297-1175
ARES Washington County Co-ordinator	N7GMS	246-5007
ARRL 1988 National Convention Chm.	WB7SIC	640-5456

COMING EVENT!!!

After field day, the BIGGEE of the summer months is our annual picnic/campout which will be at the Maiken farm, our field day site. This has been a very well attended function in the past and is an excellent way to meet new people in the club. It is much like field day but without all of the work! Tentative dating will be the 3rd weekend of August. Watch for info in next months newsletter.

Hope to CU, many of you, at our June meeting. If not, perhaps in July.....



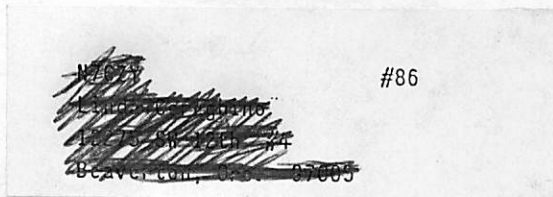
HAVE A NICE SUMMER!

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face and blow on it. If
it turns green, call your
doctor. If brown, call
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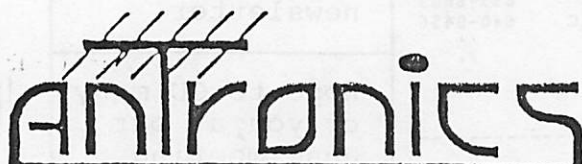
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YELLOW ALERT.....

(Seaside Convention)

The newsletter editor messed up and left out a very important message and, as a result, this insert was necessary.

Doc, KA7BSD, and Rich, KA5OLH, would like ALL of the people who served on security to attend a wrap-up meeting on Monday the 10th of June. The time will be 7:00 pm and the place is to be the Sunshine Pizza Parlor on TV Highway in Aloha.

The subject matter will be a discussion on the good, bad and the ugly of the past convention security duties. All of this is in the interest of improving our role in assuring that the convention will be a theft free show.

What is in it for you? Take your pick! A coke, a beer, a pizza? More important, you will find out if you won the promised Kenwood TH21AT handheld! The drawing is to be held at the meeting but the official presentation, along with the HT, will be made at the club meeting two days later on the night of the 12th.

Please take time out to spend an hour or two with some of your buddies, give us your opinions and make the meeting what it should be. Productive!

GOOD LUCK ON THE HT !!

Al WB7SIC

(I'll be there)
(how about you)?